IBM

Guide to Operations

IBM 7496
Executive Workstation

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products should be made to your IBM Authorized Dealer or your IBM Marketing
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The following information should be recorded and retained:

IBM Product Name   IBM 7496 Executive Workstation

IBM Model Number   _____

IBM Serial Number   _____

- The model number of this product is on the tag located at the front lower-right corner of the product and has a preface of *Type*.

- The serial number of this product is located on the same tag as the model number and has a prefix of *S/N*.

Federal Communications Commission (FCC) Statement

Warning: This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Instructions to User: If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the computer with respect to the receiver.
- Move the computer away from the receiver.
- Plug the computer into a different outlet so that computer and receiver are on different branch circuits.

Properly shielded and grounded cables and connectors must be used for connection to peripherals in order to meet FCC emission limits. Proper cables are available from IBM authorized dealers. IBM is not responsible for any radio or television interference caused by using other than recommended cables or by unauthorized modifications to this equipment. It is the responsibility of the user to correct such interference.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

How to Identify and Resolve Radio-TV Interference Problems

This booklet is available from the following:

Consumer Assistance and
Small Business Division
Room 254
1919 M St. NW
Washington, DC 20554
Tele (202) 632-7000

FOB Public Contact Branch
Room 725
1919 M St. NW
Washington, DC 20554
Tele (202) 634-1940

International Business Machines Corporation   Armonk, New York 10504

Warranty Exhibit to IBM Statement of Limited Warranty
IBM 7496 Executive Workstation

If you purchased this Machine directly from International Business Machines Corporation (IBM) or another IBM organization under an agreement for purchase of IBM machines, the warranty provisions therein shall prevail and this Warranty Exhibit and the IBM Statement of Limited Warranty (Z125-3744) shall not apply.

If you purchased this Machine from a Remarketer, the warranty services described in the IBM Statement of Limited Warranty is available only for Machines purchased and located in the United States or Puerto Rico.

If you purchased this Machine from a supplier authorized by an IBM organization to market this Machine in other than the United States or Puerto Rico, warranty information is available only from such supplier.

I. Date of Installation (Warranty start date):

   IBM, an IBM Remarketer or an IBM authorized supplier will supply the Date of Installation to you. The Warranty Period will commence on this Date.

II. **Warranty Duration:**

   Twelve months

III. **Type of Service:**

   IBM On-Site Repair

IV. **Provider of Warranty Service:**

   IBM or Remarketer may provide warranty service for this Machine.

V. **Period of Warranty Service Availability:**

   Contact a Remarketer to determine the available periods of warranty **service.**

   Contact IBM for warranty service 24 hours a day, 7 days a week by **calling 1-800-428-2569.**

This Machine is a customer Set-up (CSU) Machine. You are responsible to set up this Machine in accordance with the instructions furnished by IBM.

You may be required to present proof of purchase for this Machine to IBM or a Remarketer to obtain warranty service.

If you have any questions about warranty service, contact a Remarketer for this Machine. You may also call IBM Direct at 1-800-IBM-2468.

Statement of Limited Warranty

International Business Machines (IBM) gives you the following limited warranty for this IBM Machine. IBM gives you this limited warranty only if this Machine was originally purchased for use, and not for resale, from an IBM Authorized Dealer, IBM Authorized Industry Remarketer or an IBM approved Reseller. The Dealer, Remarketer or Reseller must be authorized or approved by IBM to market this Machine. The Warranty Exhibit to this Statement identifies this Machine and specifies other important information. This Machine will be subject to this Statement of Limited Warranty only if purchased in the United States or Puerto Rico.

DEFINITIONS

The term "Remarketer" shall mean an IBM Authorized Dealer, IBM Authorized Industry Remarketer or IBM approved Reseller for this Machine unless the context requires individual reference.

The term "Machine" shall mean a machine and/or its features, model conversions, machine elements and accessories unless the context requires individual reference.

The term "failing machine" shall mean a machine or machine element requiring warranty service as initially determined by you and, as applicable, verified by IBM.

The term "exchange machine" shall mean a machine or machine element provided to you by IBM under an Exchange Type of Service.

LIMITED WARRANTIES

A Machine subject to this Statement of Limited Warranty will be 1) newly manufactured by or for IBM from new and serviceable used parts which are equivalent to new in performance in the Machine, 2) assembled by or for IBM from serviceable used parts, or 3) a Machine which has been previously installed.

IBM warrants that on this Machine's Date of Installation it will be in good working order and will conform to IBM's official published specifications. IBM will make these specifications available to you upon request.

The Warranty Period for this Machine commences on its Date of Installation. The Warranty Period duration is specified in the Warranty Exhibit. If the Warranty Period expires on a Friday or Saturday, IBM will extend the Warranty Period so that its last day will be the following Sunday.

IBM or a Remarketer will notify you of the Date of Installation. IBM reserves the right to correct any error in such date.

Service and Parts Warranty

IBM agrees to provide the availability of warranty service for the duration of the Warranty Period at no additional charge except as set forth in this Statement. IBM will provide warranty service, as required, by 1) repairing this machine, model upgrade or feature addition or 2) exchanging the machine or machine element. IBM will render repair or exchange under one of the Types of Service described in this Statement. IBM will specify the specific Type of Service for this Machine during its Warranty Period in

the Warranty Exhibit. For certain Machines, IBM offers a Warranty Option that provides an alternate method of obtaining warranty service under another Type of Service. Any such Warranty Option is available under the IBM Maintenance Agreement.

IBM shall have full, free and safe access to this Machine to provide On-Site Types of Service. You shall promptly inform IBM of any change in this Machine's location during its Warranty Period.

You are responsible to initially determine that the machine or machine element requires warranty service. Before requesting such service, you shall follow IBM's problem determination, or problem analysis and service request procedures.

You are responsible to remove and control funds contained in a Machine. IBM will service a Machine containing funds only when you cannot open the cash container. If so, you will remove the funds as soon as the container is, or can be, opened.

IBM will render a Repair or Exchange Type of Service only when you present a failing machine to IBM.

Under a Repair Type of Service, IBM will provide remedial maintenance to restore the Machine to good working order. IBM may also provide preventive maintenance based on the specific needs of Machine as determined by IBM. IBM may also lubricate, adjust and replace parts when IBM considers it necessary. IBM will install parts, which may be used parts, on an exchange basis. IBM will acquire title to the replaced parts. You are responsible to remove or protect all programs, data and removable storage media before IBM repairs the Machine.

Under an Exchange Type of Service, IBM will provide an exchange machine which may not be new but will be in good working order. You will acquire title to it at the time of exchange. IBM will acquire title to the failing machine at the time of exchange. IBM reserves the right to verify that a failing machine is acceptable for exchange. You are responsible to remove all non-IBM parts, options, alterations and attachments before you present a failing machine for exchange. You give up all rights to any such items not removed. You will not present IBM a failing machine for exchange which is defaced, altered, in need of a repair not included in warranty service, or damaged beyond repair. IBM will inspect the failing machine to determine if the failing machine is in such condition. If so, IBM will nullify the exchange and each party will return to the other machine or machine element in its possession. You will ensure that a failing machine is free of any encumbrances at the time you present it to IBM under an Exchange Type of Service.

The Period of Warranty Service is 24 hours a day, 7 days a week for IBM On-Site Types of Service. The Period of Warranty Service for all other Types of Service is the normal business hours of the IBM designated location.

If you request, and IBM provides, an On-Site Type of Service in place of the Type of Service then in effect, you shall pay IBM's then generally available charge for the service provided.

Warranty service does not assure uninterrupted operation of this Machine.

During the Warranty Period, IBM will control and install engineering changes IBM determines to be applicable to this Machine. You may, by providing notice subject to

IBM's written confirmation, elect to have only IBM designated mandatory engineering changes installed on this Machine.

Types of Service

IBM On-Site Repair (IOR)

IBM will provide warranty service for the failing machine at your location.

IBM On-Site Exchange (IOE)

IBM will 1) deliver the exchange machine to your location, 2) disconnect the failing machine, 3) connect the exchange machine, 4) verify its operation, and 5) remove the failing machine from your location.

Customer On-Site Exchange (COE)

IBM will have an exchange machine delivered to your location. You will 1) disconnect the failing machine and prepare it for shipment to IBM, 2) connect the exchange machine, and 3) verify its operation. You will follow IBM's instructions regarding shipment of the failing machine to IBM. IBM will pay the shipment expense.

Customer Carry-In Repair (CCR)

You will 1) deliver the failing machine to an IBM designated location, 2) pick up the machine or machine element, following any repairs, and take it to your location, 3) connect it, and 4) verify its operation.

In place of such delivery and pickup, you may ship the failing machine, prepaid, in the original shipping container, or equivalent, to an IBM location designated to receive such shipment. Following any repairs, IBM will ship the machine or machine element to your location, prepaid, within the United States or Puerto Rico.

Customer Carry-In Exchange (CCE)

You will 1) deliver the failing machine to an IBM designated location, 2) pick up the exchange machine and take it to your location, 3) connect it, and 4) verify its operation.

In place of such delivery and pickup, you may ship the failing machine, prepaid, in the original shipping container, or equivalent, to an IBM location designated to receive such shipment. Following receipt of the failing machine, IBM will ship the exchange machine to your location, prepaid, within the United States or Puerto Rico.

You are responsible for risk of loss of, or damage to, the Machine during the period such Machine is in transit to and from IBM. However, IBM is responsible for risk of loss of, or damage to, 1) IBM-owned Machines and/or 2) a Machine owned by other than IBM while in IBM's possession or in transit from IBM to you by an IBM-selected carrier whose charges IBM prepays. In addition, IBM is responsible for loss or damage due to IBM's negligence.

Additional Provisions for Features and Model Conversions

IBM's warranty for each feature addition or model upgrade requires that the machine on which such addition or upgrade is installed meets certain conditions. The machine must 1) be at a proper engineering-change level, as IBM determines, 2) be the specific serial-numbered machine for which you ordered such addition or upgrade, and 3) have been modified only with changes obtained from IBM specifically for that serial-numbered machine. If these conditions are not met, IBM will attempt to install a non-CSU feature addition and/or model upgrade on the machine. If such attempt results in a correctly functioning machine, this Statement will apply. If such attempt results in an incorrectly functioning machine, upon your request, IBM will remove the feature addition and/or model upgrade and restore the machine to its prior condition. In such case, IBM will invoice you IBM's generally available charges, including travel expenses. If the feature addition or model upgrade involved the removal of parts which became IBM's property, such feature addition or model upgrade becomes IBM's property and the restored parts become your property.

IBM will provide a three-month parts warranty for additional parts supplied by IBM for a feature removal, model downgrade or reinstallation of a previously purchased feature or model conversion.

Additional Provisions for Machine Elements and Accessories

A machine element, which you separately purchased, or an accessory has a three-month Warranty Period unless IBM specifies a longer duration. During the Warranty Period, you will remove any such machine element or accessory which fails in normal use. You will then ship it, prepaid, to the IBM location designated to receive such shipment. IBM will repair or replace, at its option, such machine element or accessory. IBM's shipment to you will be prepaid within the United States or Puerto Rico.

Travel Expense

There will be no additional charge for travel expenses associated with warranty service except when the site at which the Machine is located is inaccessible to the IBM service representative by both private and scheduled public transportation.

Services for Additional Charge During the Warranty Period

Warranty service does not include repair of certain Machine failures. These failures are those which are caused by an unsuitable environment, accident, disaster, transportation, vandalism, misuse, abuse, another product or device not under IBM warranty or IBM agreement service, non-IBM modification, or service of the Machine by other than IBM. In addition, warranty service does not include inspection of the Machine, including inspection of an altered Machine, or repair of damage caused by use of, inadequate use of, or failure to use, supplies. If service not included in warranty service is available, and IBM provides such service, it will be provided for an additional charge. IBM shall determine such charge by using IBM's 1) then generally available hourly service rates and minimum charges for service time, including travel and waiting time, 2) parts and material prices then generally in effect, and 3) charges for travel and shipping expenses, all as applicable.

Other Warranty Provisions and Exclusions

This limited warranty does not include any service which is impractical for IBM to render because of alterations in, or attachments to, this Machine. IBM will replace a part not provided by IBM for this Machine only with a directly interchangeable IBM part. If so, IBM will charge you as described in the preceding paragraph. IBM will not replace any part which is included in an alteration.

If you transfer this Machine to another user, IBM will provide the availability of warranty service under this Statement to that user. Such warranty service will be available for the remainder of the Warranty Period. Therefore, you should transfer the proof of purchase and this Statement to that user.

THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

LIMITATION OF REMEDIES

Your sole remedy under this Statement of Limited Warranty is set forth in this Section. For any claim concerning performance or nonperformance by IBM, and IBM Authorized Dealer, or an IBM Authorized Industry Remarketer for this Machine under this Statement of Limited Warranty, you may recover actual damages up to the limit set forth in the following paragraph.

The limit of IBM's liability for actual damages to you for an individual event based on any cause whatsoever shall be the greater of 1) $100,000 or 2) the amount you paid for the Machine which caused the damages. This limitation of liability will not apply to claims for personal injury or damage to real property or tangible personal property caused by IBM's negligence. In no event will IBM be liable to you for any damages caused by your failure to fulfill your responsibilities under this Statement of Limited Warranty. In no event will IBM be liable for any lost profits, lost savings, incidental damages, or other consequential damages. This is true even if you advised IBM or a Remarketer of the possibility of such damages. IBM is not liable for any claim by you based on any third party claim.
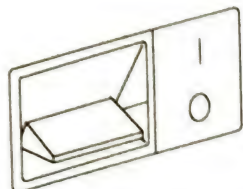
Electrical Safety

Electrical current from power, telephone, and communications cables is hazardous. Connect and disconnect cables as shown when installing, moving, or opening the covers of this product or attached devices.
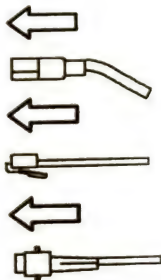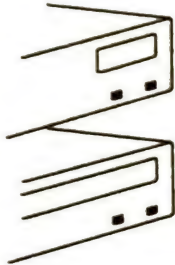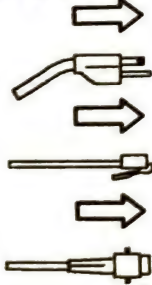
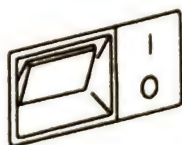**To Connect**

To Disconnect

Turn Everything OFF.

Devices First,

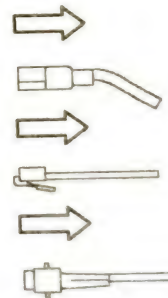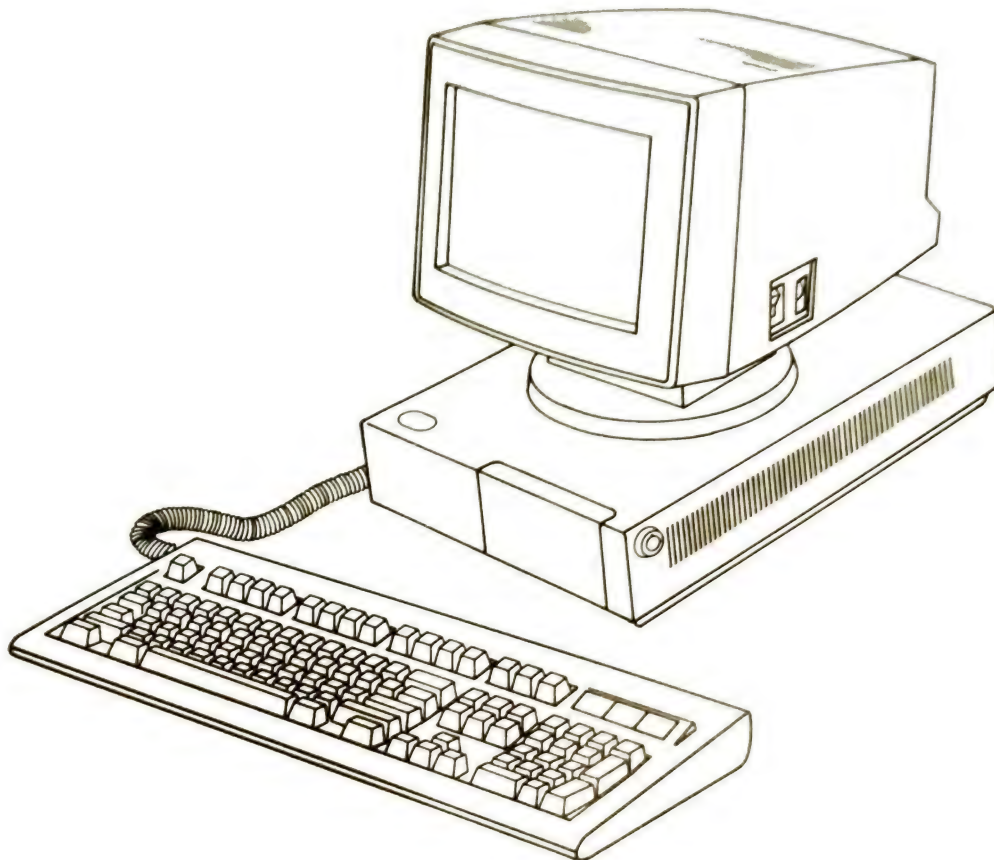Outlets First,

Then Outlets.

Then Devices.

OK

OK

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Contents

SECTION 1. GETTING STARTED

The following question will help you determine which sections in this manual to use:

1 Is the IBM 7496 Executive Workstation unpacked, cabled, and ready to use?

NO Go to "Installing Your System" on page 1-2.

YES Are there internal options to install?

    NO Go to "Operating Your System" on page 3-1.

    YES Go to "Installing Your Options" on page 2-1.

Installing Your System

1 Unpack the IBM 7496 system unit (with attached display) and the keyboard.

2 Do you have options, such as adapters or modules, to install in the system unit?

    No   Go to step 3.

    Yes   Go to "Installing Your Options" on page 2-1. When you have installed the options, you will be directed back to step 3.

3 Does your IBM 7496 system have a monochrome display or a color display?

    Monochrome Go to step 4.

    Color   Go to step 5 on page 1-3.

4 Be sure the power switch at the monochrome display is off (0); this switch is the power switch for both the display and system unit; then go to step 6 on page 1-3.
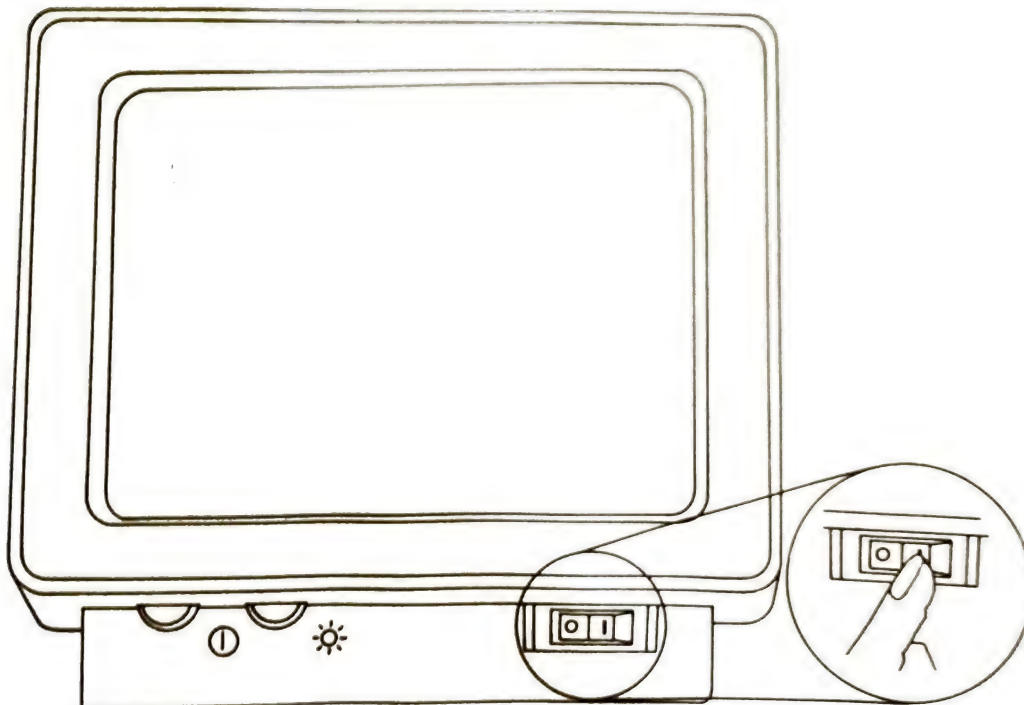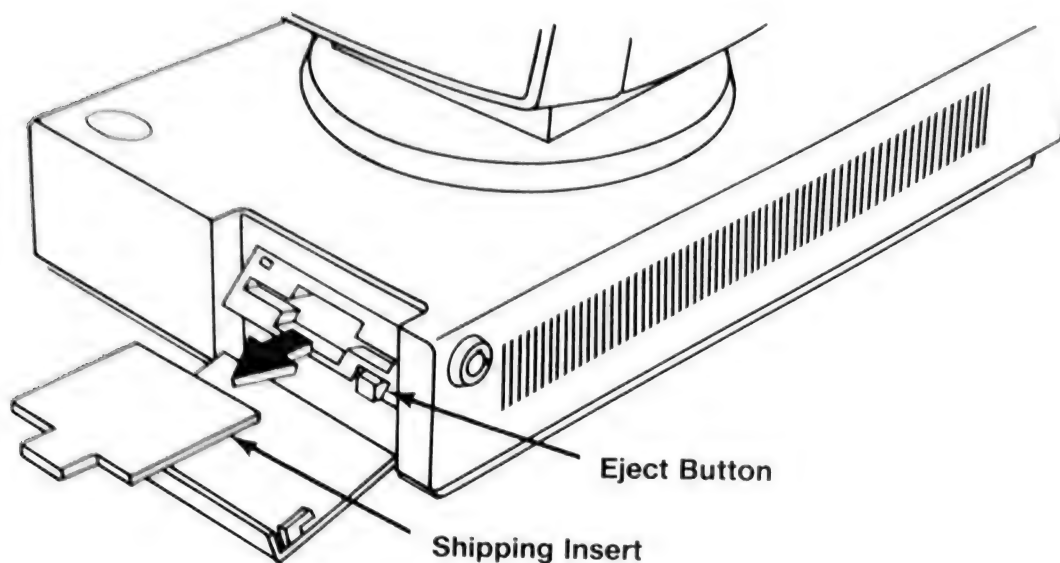
5 Be sure the power switch at the color display is off (unmarked part of switch); this switch is the power switch for both the display and system unit.
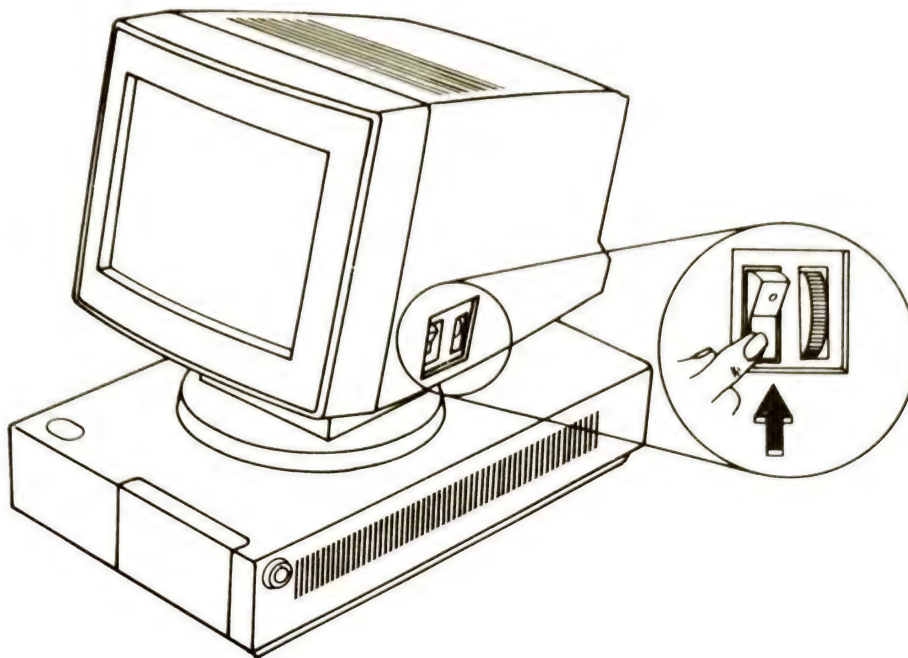
6 Unlock the keylock that secures the diskette drive door, then remove the keys.
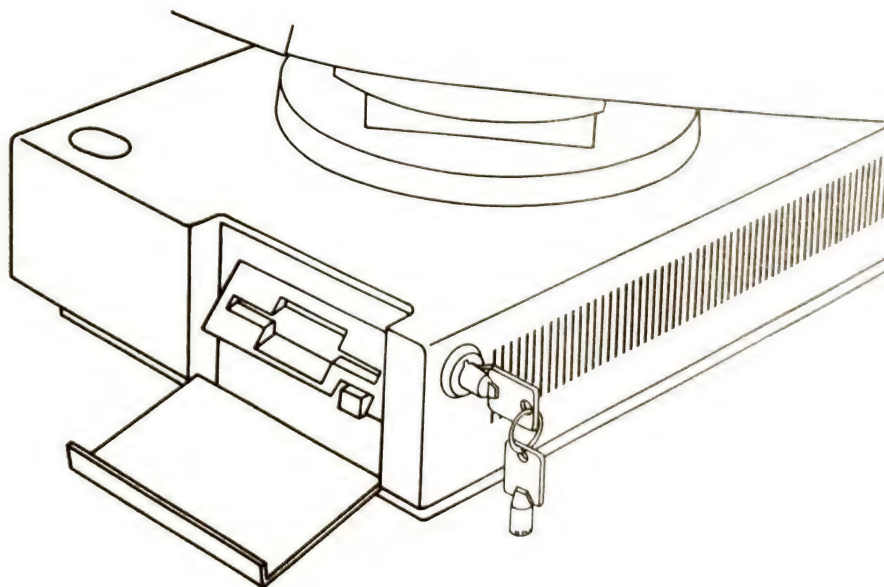
**7** Push the eject button and remove the diskette shipping insert, if present.

Eject Button

Shipping Insert

Warning: When removing the door in the next step, use care not to break the hinges on the door.

8 Press down on the top center of the rear door and open it. In a direction that is perpendicular to the door, push on the inside of the door until the hinges are free of the pins.

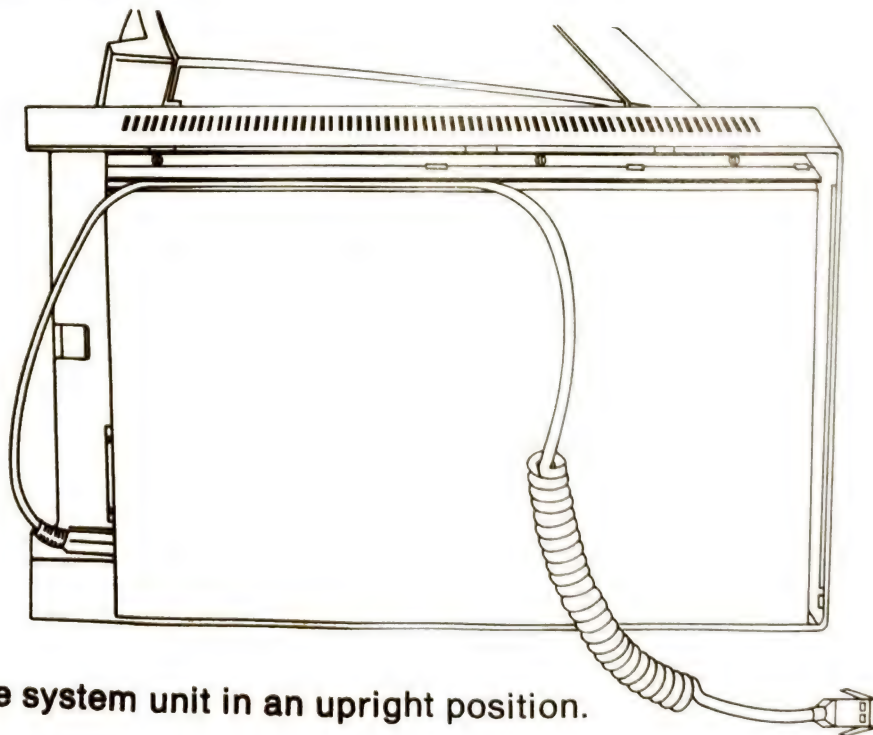

1

2

Metal
Pin

Plastic
Hinge

Inside
of Door
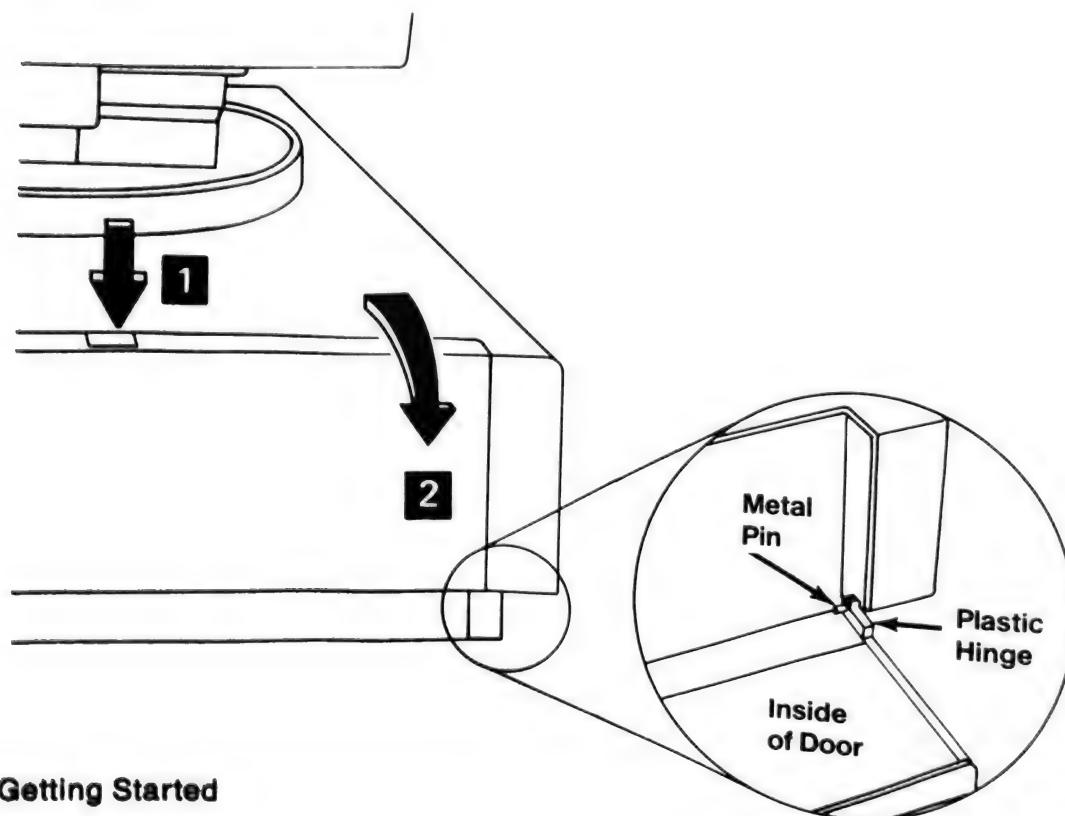
**9** Connect the keyboard cable to the system unit as shown in the following figure.
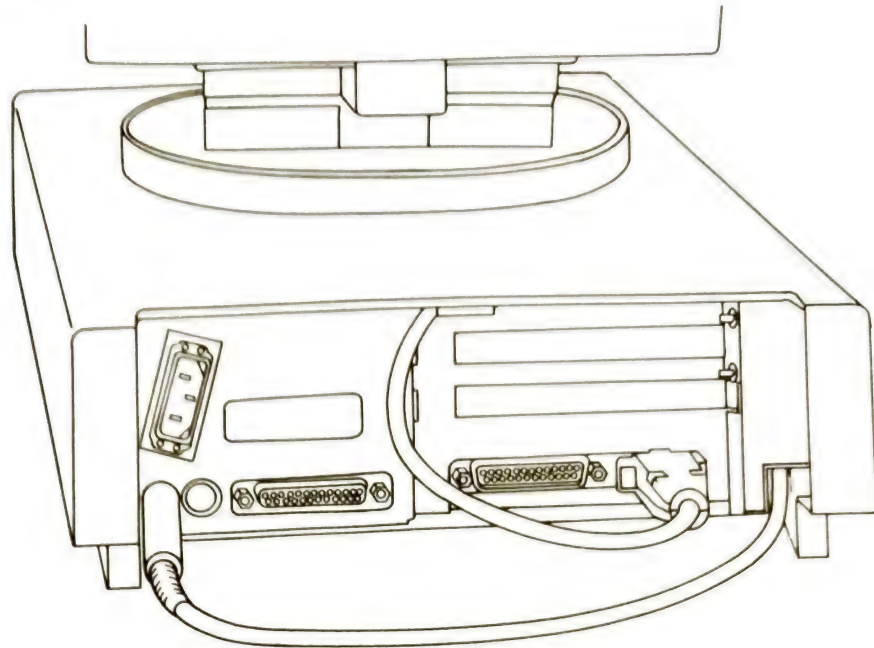
10 Carefully set the system unit on its left side (as viewed from the rear of the unit).

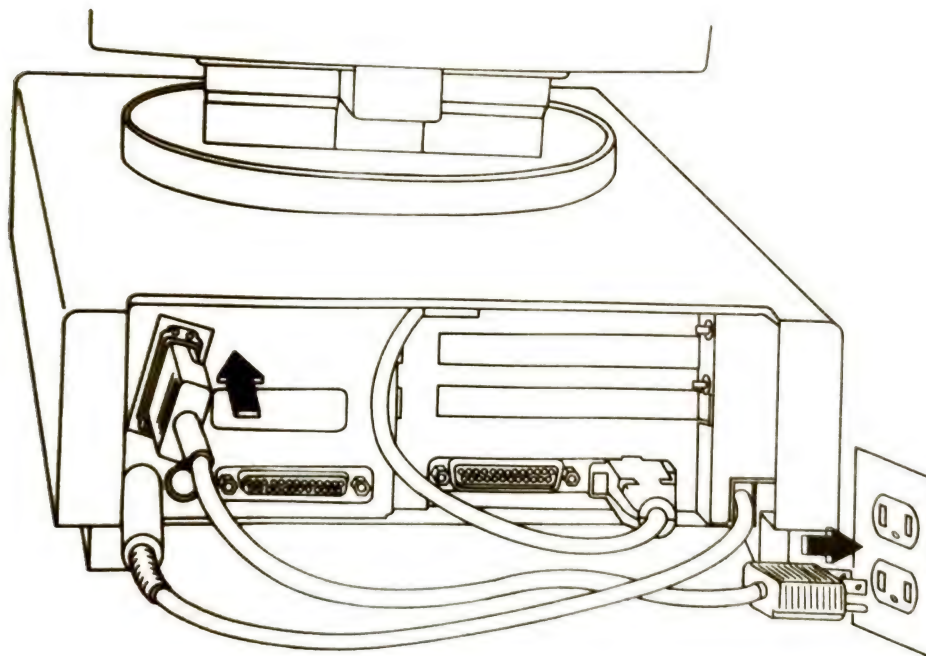**11** Press the keyboard cable into the cable channel as shown in the following figure.

12 Place the system unit in an upright position.

13 Connect the keyboard cable to the keyboard. (The cable connector fits only one way.)
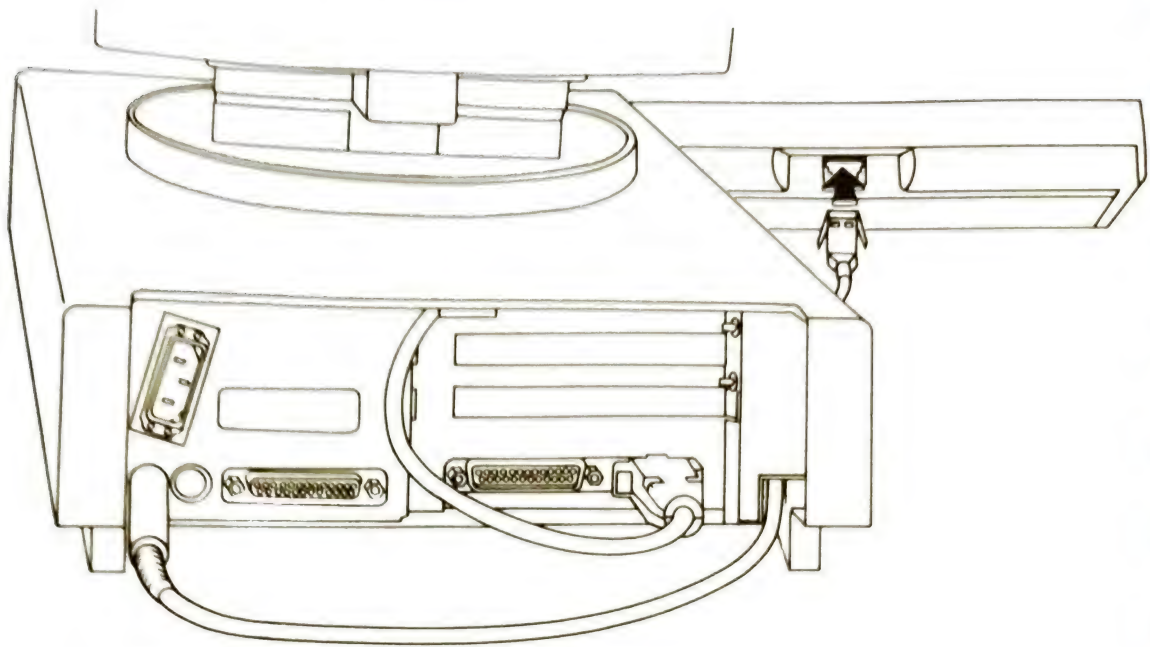
14 Connect the power cord to the system unit; then plug the cord into a properly grounded electrical outlet.

CAUTION:
Connect to a properly
grounded outlet.

15 Arrange the cables at the back of the system unit so that you can install the rear door without pinching the cables.

16 Install the rear door by seating the hinges on the door to the pins on the system unit and pushing inward. See the figure associated with step 8 on page 1-4.

17 To verify that your system works properly, go to "Operating Your System" on page 3-1.

SECTION 2. INSTALLING YOUR OPTIONS

Internal Options

Internal options are additional parts installed inside the system unit to expand its capabilities.

Contact IBM to be sure that any options you wish to install will operate in your system.

Some earlier manufactured levels of the Binary Synchronous Communications Adapter, the Synchronous Data Link Control Communications Adapter and the 3278 Adapter may not operate correctly in the IBM Executive Workstation. Contact IBM for current information regarding these two options.

Installation Instructions

Review the installation instructions that are supplied with the option. Use the information in this section for display and top cover removal, option installation, and display and cover installation.

Installation Requirements

- A flat work surface large enough to hold the system unit and any options you wish to install.

- A medium, flat-blade screwdriver.

Display and Cover Removal

1 Is the IBM Executive Workstation cabled and ready to use?

    YES   Go to Step 2.

    NO   Go to Step 8 on page 2-3.

2 Switch off the system power switch (located on the display).

3 Switch off power for all external options (printer, and others).

4 Unplug the system unit power cord from the electrical outlet.

5 Unplug the power cords of any external options from electrical outlets.

6 Remove the rear door. See step 8 on page 1-4.

7 Disconnect all cables, including the display cable, from the rear of the system unit. Use the following figure and note the locations of all cables before disconnecting them.

Power

Keyboard Pointing Parallel   Serial   Display
   Device

Two Expansion Slots
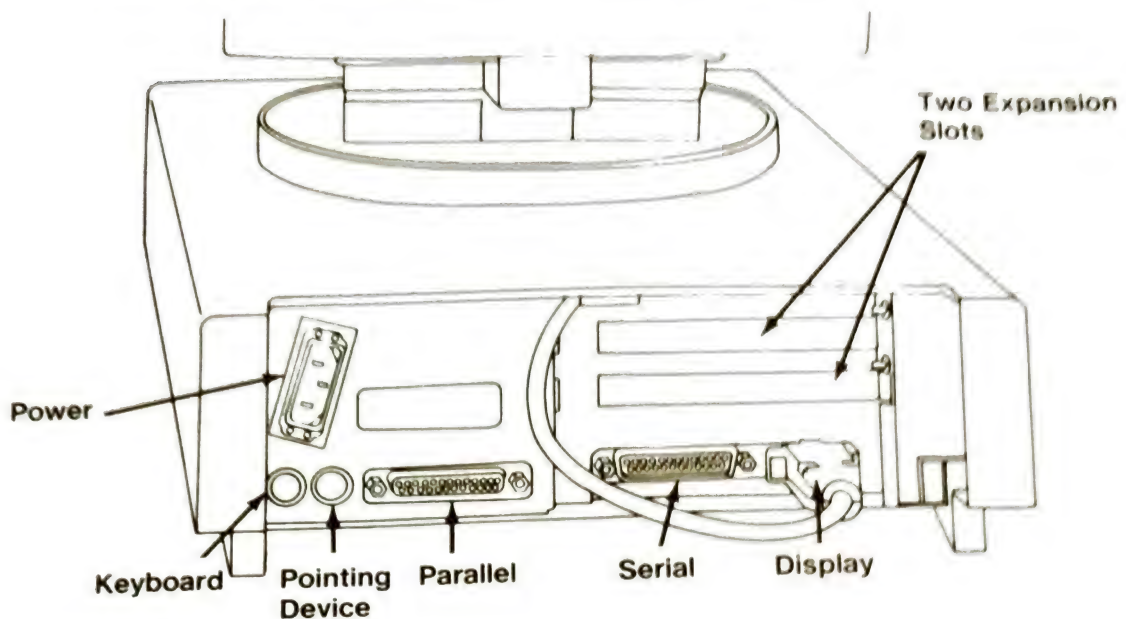
8 Unlock the keylock that secures the diskette drive door and remove the key.

9 Carefully set the system unit on its right side (as viewed from the front).

10 Loosen and remove the cover mounting screws. Save them for reinstallation.

Cover Mounting
Screws
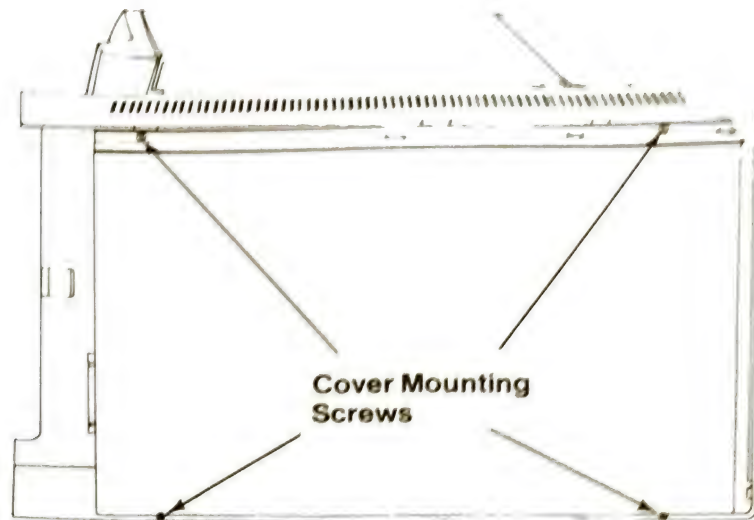
Warning: When performing the next step, take care not to strain the cables that connect the display to the system unit, or damage can occur.

11 Carefully pull the base away from the top cover and position as shown below. Note that the diskette drive bezel falls off when the top cover is separated from the base. Save the bezel to reinstall it later.
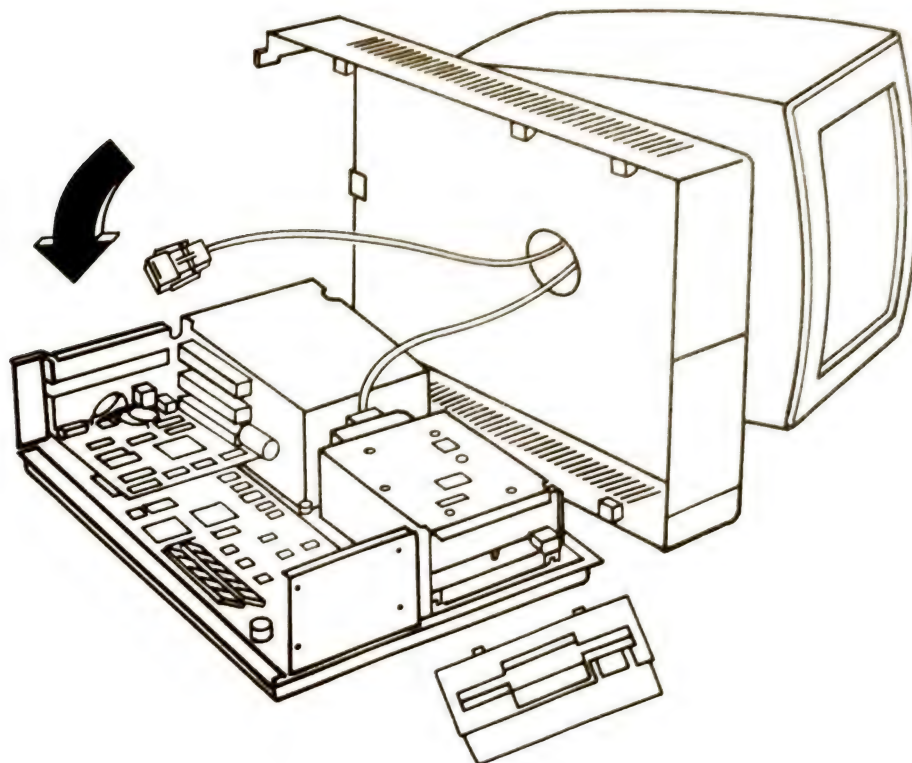
Adapter Installation

Two adapters can be installed in the system unit. If you are installing two adapters and one is longer than the other, you may want to install the longer adapter in the the bottom expansion slot for convenience, however, this is not a requirement. The following steps will help you when installing an adapter:

1 Remove the system unit cover; see page 2-2.

2 Remove the screw and expansion slot cover. Save the screw for the installation of the adapter.

Screw

Expansion
Slot
Cover
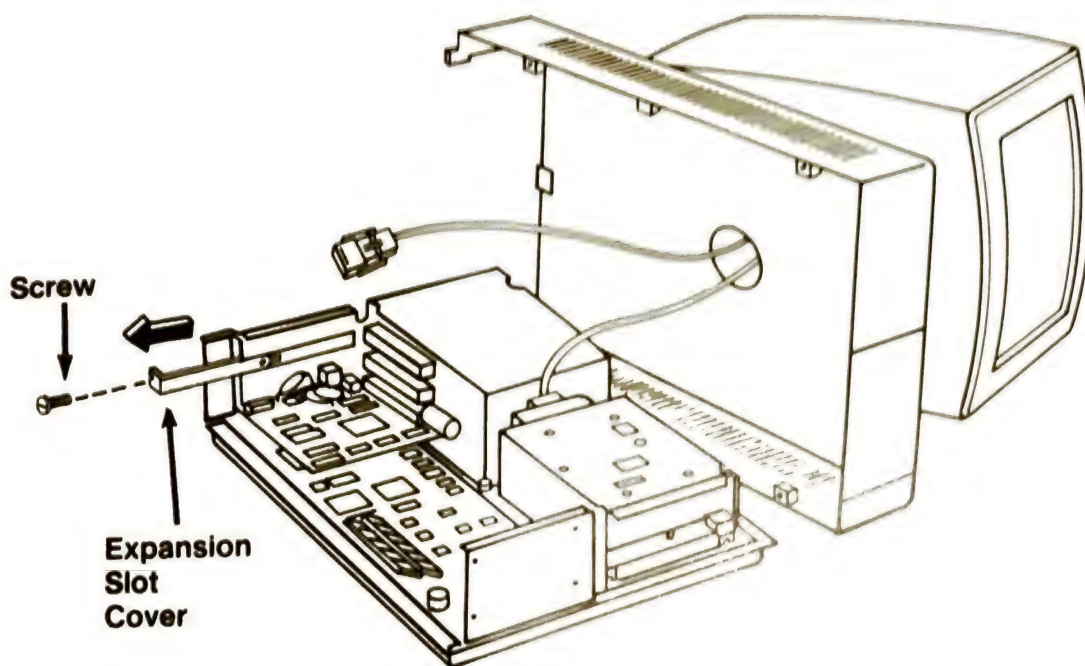
3 If the option has switch or jumper settings that need to be set, locate and use the switch and jumper information from the Personal Computer XT™, Personal Computer AT®, or Personal System/2® Model 30 instructions that are supplied with the option. (The switch and jumper information is the same in all packages.)

Save any switch or jumper information with this *Guide to Operations* for future reference.

4 Hold the adapter by the edges and align it with the support brackets; then firmly press it into the expansion slot.
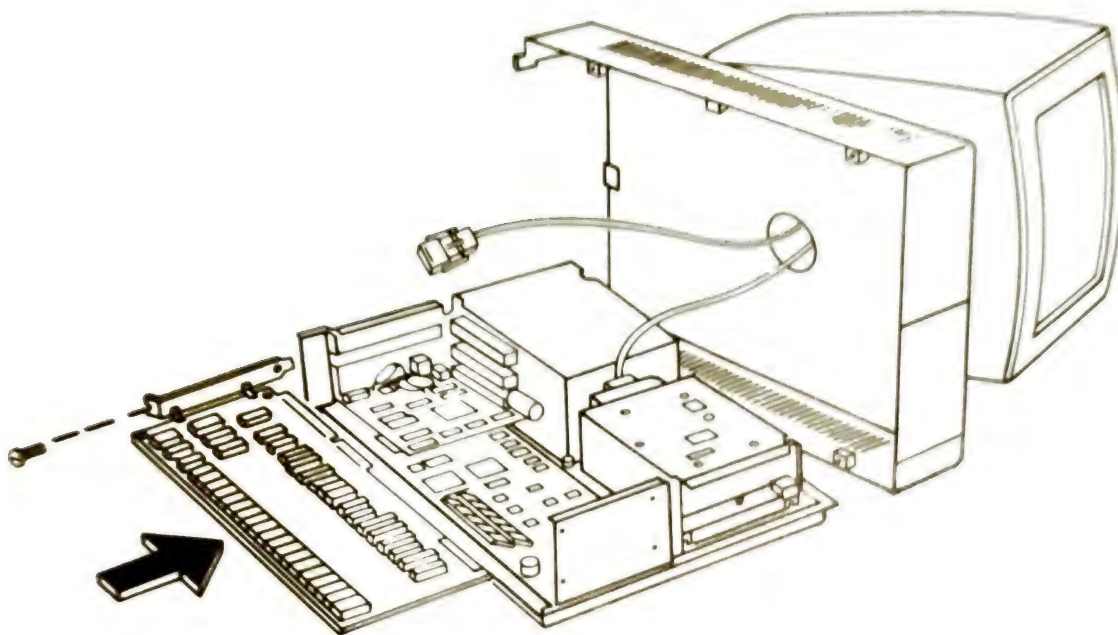
5 To secure the adapter, install the screw you removed in Step 2.

Personal Computer XT is a trademark of the International Business Machines Corporation.

Personal Computer AT and Personal System/2 are registered trademarks of the International Business Machines Corporation.

6 If you have other internal options that need to be installed, do so now. If not, continue with "Cover Installation" on page 2-8.

Display and Cover Installation

1 Make sure that the signal cable is positioned to mate with the notch in the rear top of the base.

Warning: When performing the next step, take care not to strain the cables connecting the display to the control unit, or damage can result.

2 Lift the base and set it in place in place in the top cover.
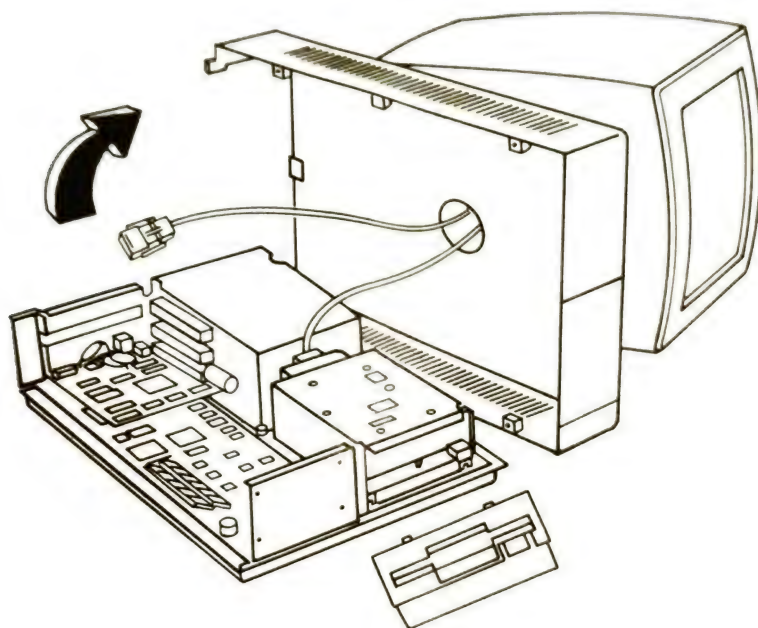
3 Insert and tighten the cover mounting screws.

Cover Mounting
Screws

4 Set the system unit upright and install the diskette drive bezel. Make sure the bottom tabs are pushed into place first; then snap the top tabs in place.
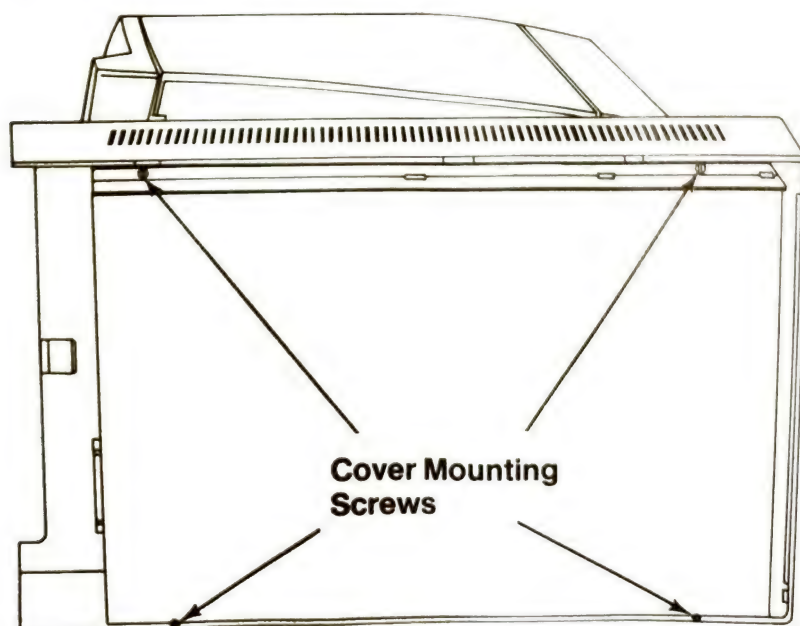
Bottom Tabs

Top Tabs
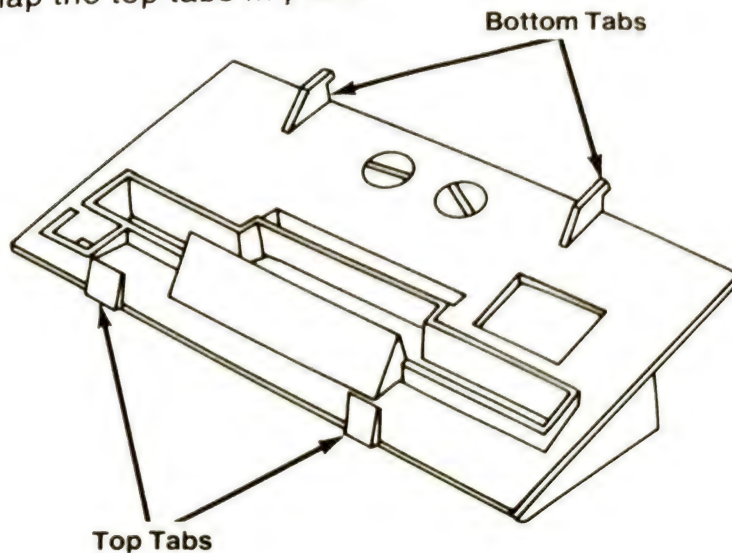
5 Replace any cords and cables removed during cover removal. If you have options to install that attach to the outside of your system unit, continue with "External Options" on page 2-10. If not, go to step 3 on page 1-2 to complete the installation.

External Options

External options are devices that attach to the outside of the system unit or to other installed internal adapters. Some examples of external options are:

- Printers
- Pointing devices
- Communications (Serial or Parallel) devices.

Refer to the option instructions and the figure below for the appropriate connector to use.

Note: Save any switch or jumper information with this *Guide to Operations* for future reference.
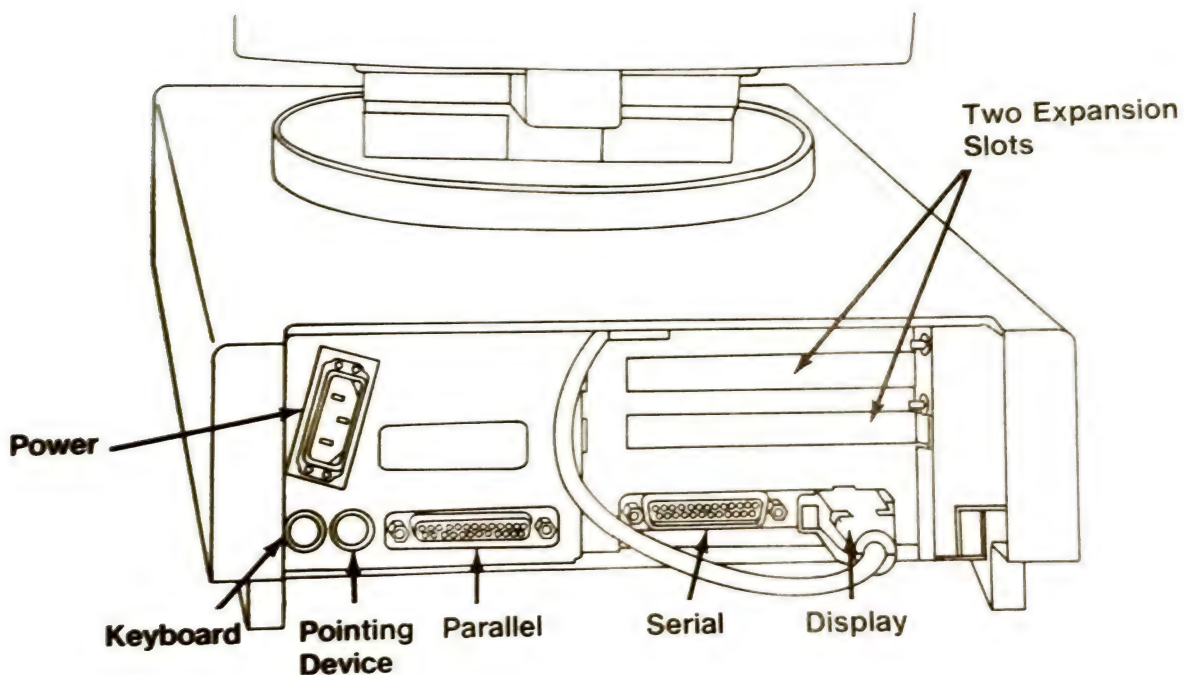
Return to Step 3 on page 1-2.

SECTION 3. OPERATING YOUR SYSTEM

The IBM Executive Workstation consists of a system unit with a color
or monochrome display attached on top, and a keyboard. The display
has an integrated tilt and swivel base, and can be turned 330
degrees. The minimum hardware requirements to begin using your
system are the system unit (with attached display), and keyboard.

You can tailor your system to your needs by adding hardware options
such as a communications adapter and a printer, and by adding
software options such as an operating system and application
programs.

Customer Diagnostic Diskette

Included with this *Guide to Operations* is the Customer Diagnostic Diskette. This diskette contains information to checkout the system, format and copy diskettes, and to set time and date. To run the Customer Diagnostic Diskette, complete the steps on the following pages.

Use this *Guide to Operations* as a reference after you become familiar with the contents of the Customer Diagnostic Diskette.

Using the Customer Diagnostic Diskette

Remove the Customer Diagnostic Diskette from its folder and continue with the following steps to start using the system:

1 Switch off the system unit.

2 Unlock the diskette drive cover.
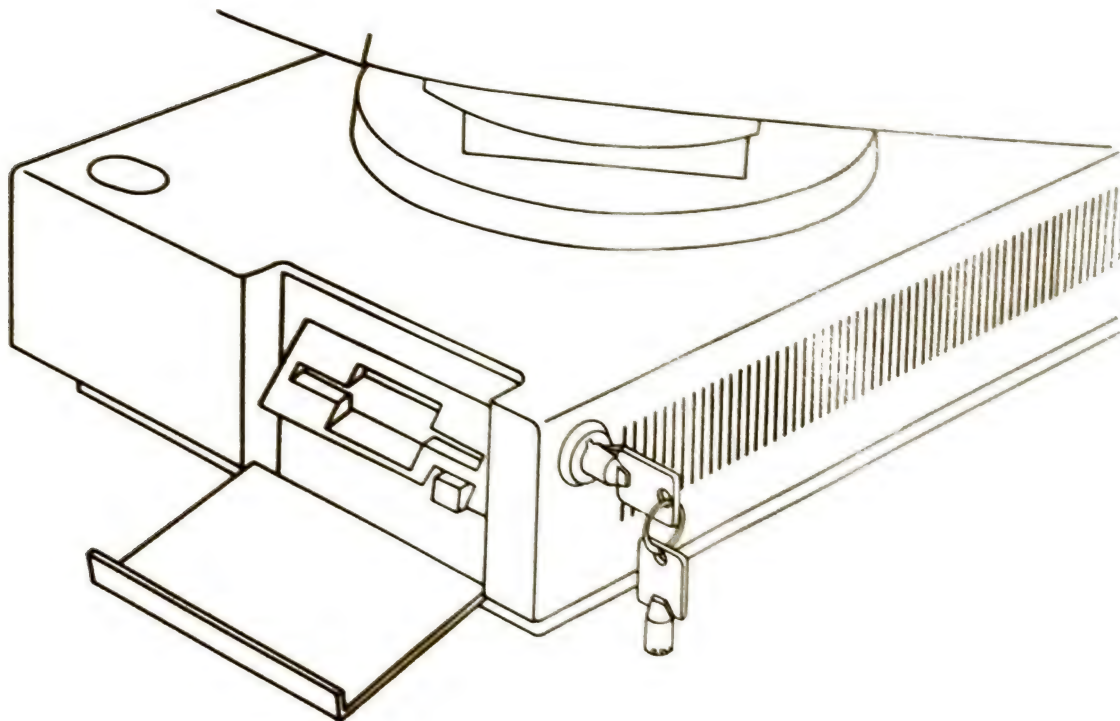
3 Insert the Customer Diagnostic Diskette into the diskette drive. When you have fully inserted the diskette, it *clicks* into place.
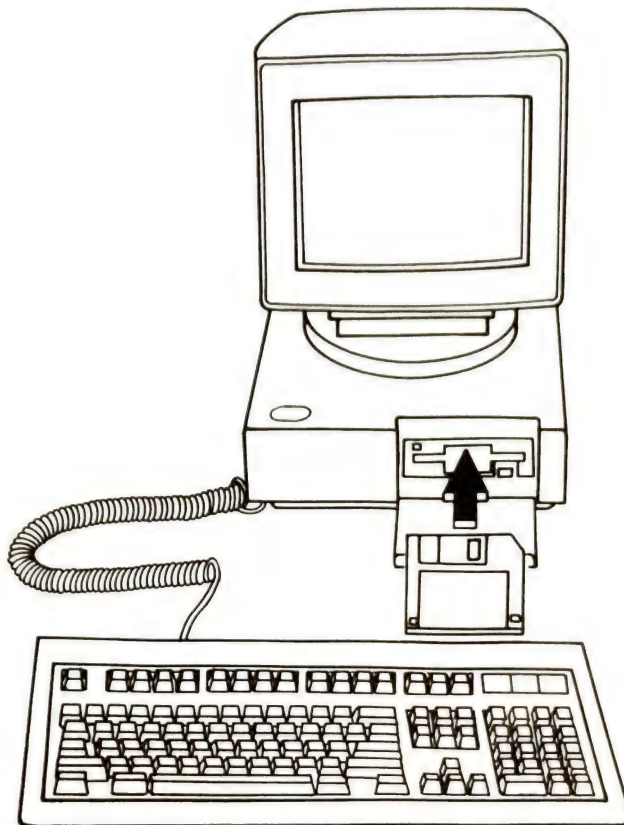
4 Does your system have a monochrome display or a color display?

Monochrome Go to step 5 on page 3-4.

Color Go to step 6 on page 3-4.

5 Preset the Contrast and Brightness controls on the display by turning them to their middle positions. Later, when using the display, adjust the Brightness control until the background just disappears and adjust the Contrast control for viewing comfort. Continue with step 7 on page 3-5.

Contrast Control   **Brightness Control**

6 Preset the Brightness control on the display by turning it to its middle position. Later, when the display is on, adjust the Brightness control until the background just disappears.

Brightness Control

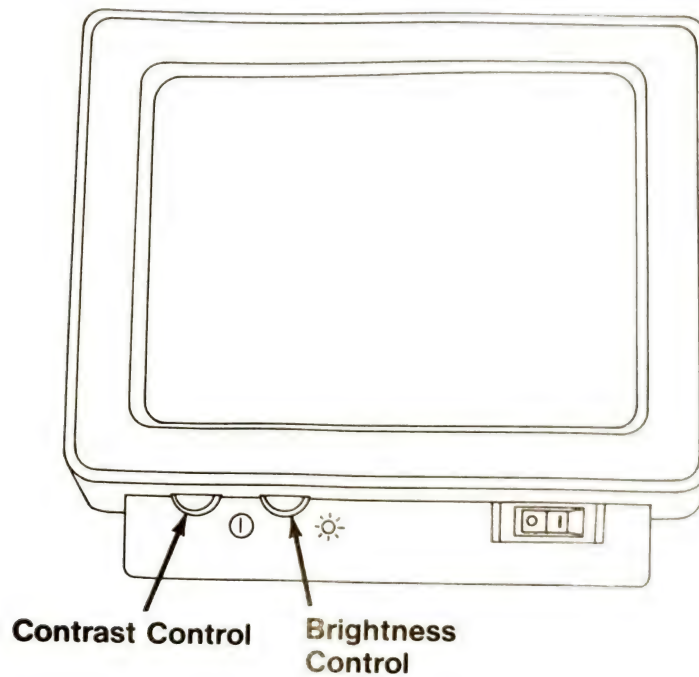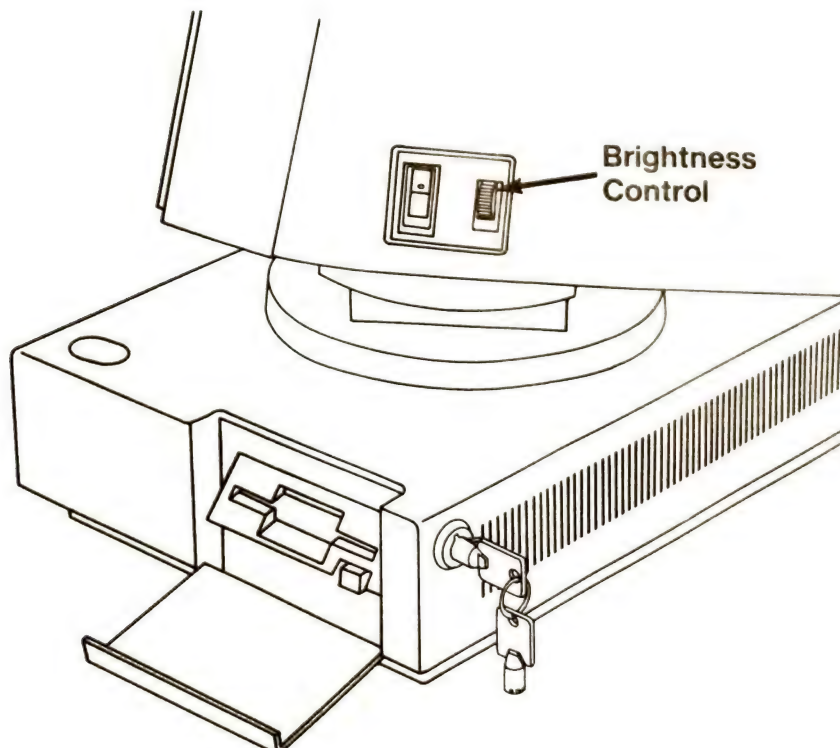**7** Does your system have a monochrome display or a color display?

Monochrome Go to step 8.

Color Go to step 6 on page 3-4.

8 At the display, switch on the power for the system. Continue with step 10 on page 3-6.
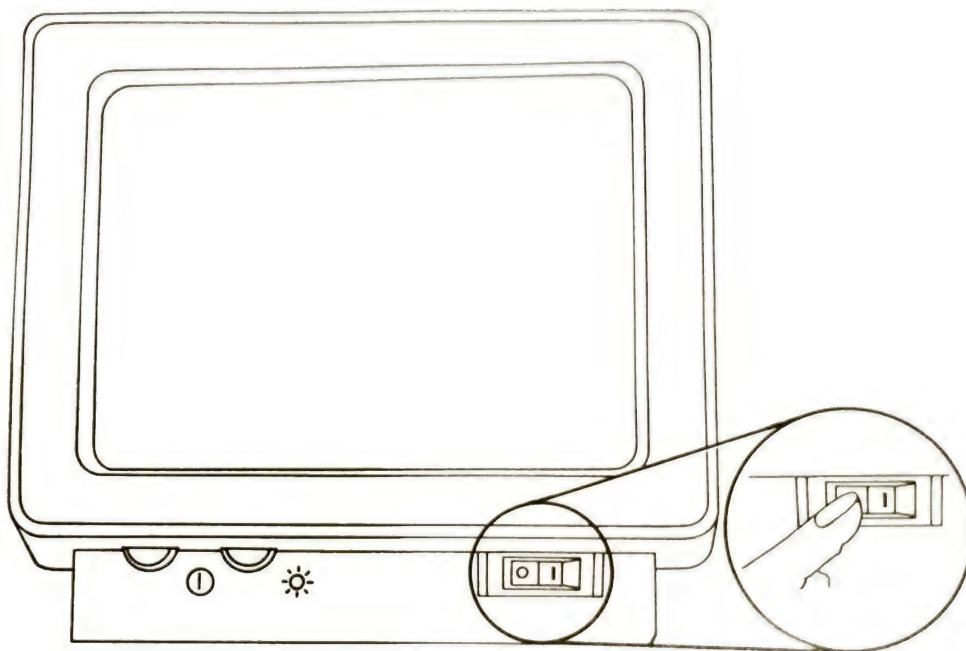
9 At the display, switch on the power for the system.
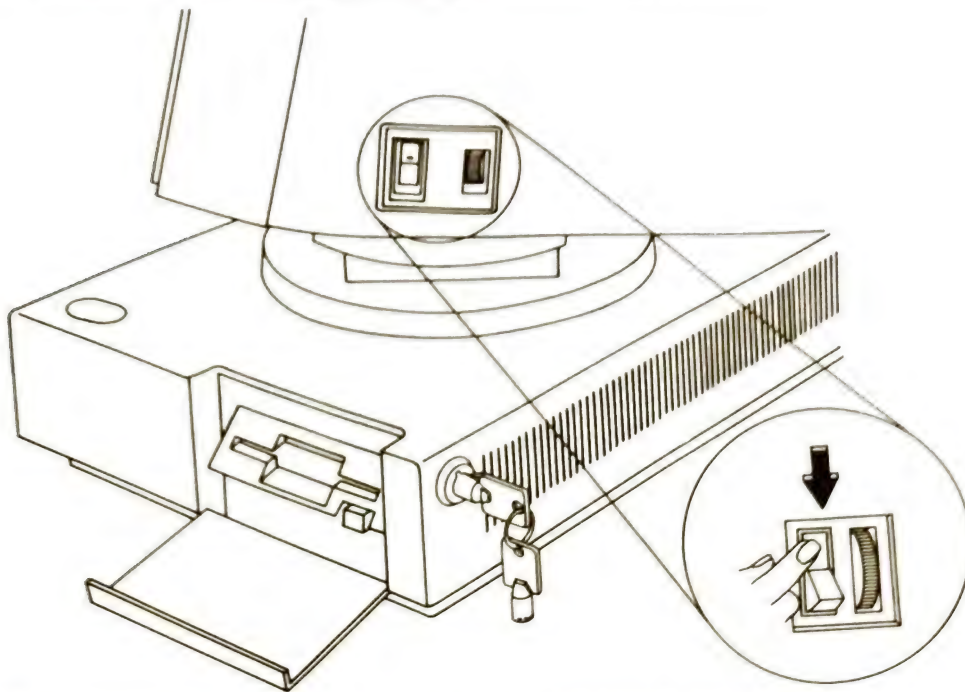
10 The system unit runs a power-on self-test each time it is switched on. The self-test takes approximately 45 seconds to complete. During the self-test, the following events occur:

- **The system** unit and memory are tested. The memory size **appears in** the upper left-hand corner of your screen.

- **At the end** of the self-test you will hear one beep.

After the self-test, the system unit loads the program from the **Customer Diagnostic** Diskette.

11 After the self-test, does the following screen appear?

Note: The display screen drawings shown in this manual are intended to be representative rather than replicas. The shapes of characters on the display screen may appear slightly different from those shown.

```
                    ========
                    ========
                     ======
                      ====
                    ========
                    ========
                     ======
                      ====
                    ========
                    ========

           Executive Workstation

           Customer Diagnostic Diskette




           (C) Copyright IBM Corporation 19XX

           Press ENTER (◄─┘) to Continue
```
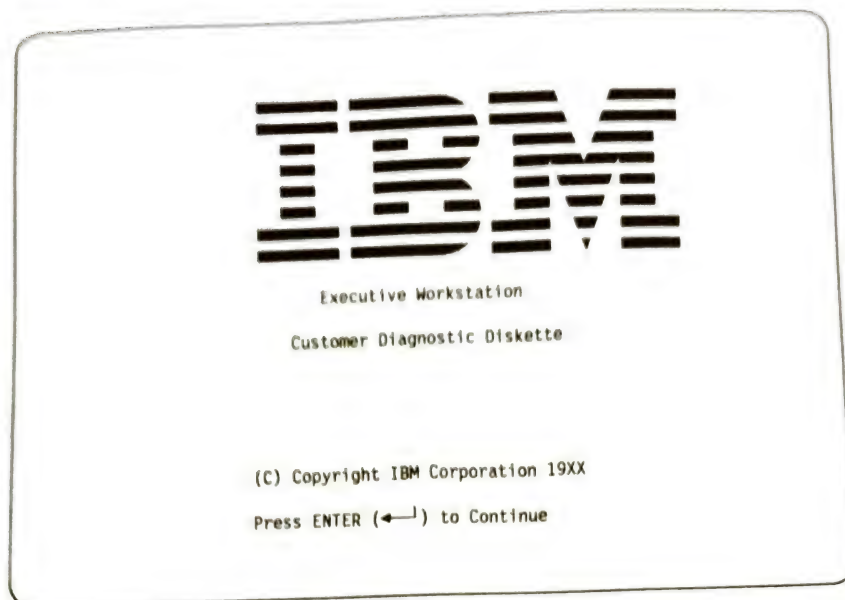
YES   Press **Enter** and continue with the next step.

NO   Remove the diskette and verify that:

- **It is the** Customer Diagnostic Diskette.

- **It was inserted properly.** To verify that the diskette was inserted properly, begin with Step 1 on page 3-2.

If the diskette was inserted correctly, and you do not get the screen shown above, go to "Testing Your System" on page 4-1.

12 The following screen appears:

```
IBM Executive Workstation
CUSTOMER DIAGNOSTIC DISKETTE
Version X.XX


(C) Copyright IBM Corporation, 1981, 1987, 19xx



SERVICES:

0 - SYSTEM CHECKOUT
1 - FORMAT DISKETTE
2 - COPY DISKETTE
4 - SET TIME AND DATE

9 - END SERVICES

Select a Number and Press ENTER
?
```

The Services functions include the following utility and test programs:

System Checkout   A diagnostic program to test
                        the system

Format Diskette   A format program to prepare
                        diskettes for system use

Copy Diskette   A copy program to back up the
                        Customer Diagnostic Diskette
                        and other diskettes

Set Time and Date   A program to set or change the
                        system time and date

End Services   Allows you to exit from the
                        Customer Diagnostic Diskette
                        programs.

After reviewing the Customer Diagnostic Diskette, go to "Testing Your
System" on page 4-1 to test the system for correct operation.

SECTION 4. TESTING YOUR SYSTEM

Problems with your system can be caused by software, hardware, or both. This section helps you determine the cause of a problem and what to do about it.

Notes:

1. Use this section to test only IBM products. Non-IBM products may give invalid errors or responses.

2. Some devices that attach to your system have test instructions; refer to those instructions when testing those devices.

3. Record any error message or symptom for future reference.

4. When using software, you may receive error messages. Refer to the software manual for a description of those messages.

Starting the Tests

Your system performs a power-on self-test each time you switch it on. In addition, other tests are available on the Customer Diagnostic Diskette.

Follow these steps to begin testing your system:

1 Switch off the system unit.

2 Insert the Customer Diagnostic Diskette into the diskette drive.

3 Switch on the system unit.

Important: Pay close attention to the *number* of beeps that your system unit makes during the self-test. You will be asked how many beeps you heard if the self-test finds a problem.

4 After the self-test (approximately 45 seconds), does the following screen appear?

```
                    ═══════  ══════   ═══     ═══
                    ═══════  ═══════  ════   ════
                      ═══    ═══ ═══  ═══════════
                      ═══    ══════   ═══ ═══ ═══
                      ═══    ═══════  ═══  ═  ═══
                      ═══    ═══ ═══  ═══     ═══
                    ═══════  ═══════  ═══     ═══
                    ═══════  ══════   ═══     ═══

                         Executive Workstation

                      Customer Diagnostic Diskette




                    (C) Copyright IBM Corporation 19XX

                    Press ENTER (◄──┘) to Continue
```

YES   The self-test is complete. To continue testing, follow the instructions on your Services screen.

      a. Select the **FORMAT DISKETTE** option and format **one** blank diskette.

      b. Select the **SYSTEM CHECKOUT** option to begin testing.

      c. Follow any instructions on your screen.

      If you receive an error message, refer to the following troubleshooting charts; then take the action listed.

NO   Refer to the following troubleshooting charts; then take the action listed.

      Note: Some system errors allow you to press the **F1** key to continue. This allows you to operate your **system** with reduced function.

Troubleshooting Charts

If your system has any of the following error messages, take the action described. If your system has more than one of the messages, take the action described for the *first* message. Error messages appear in the upper left-hand part of the screen.

Error Message	Action
205 - Memory Error	Have the system unit serviced (Note: Pressing the F1 key allows you to continue using the system with reduced memory).
301 - Keyboard or System Unit Error	Make sure the keyboard is connected correctly and a key is not being held down. If a key is not being held down: 1. Switch off the system unit. 2. Wait 5 seconds. 3. Switch on the system unit. If the **301** error remains, repeat these steps after plugging the keyboard cable into the pointing device connector on the rear of the system unit. If this clears the error, have the system unit serviced. If the **301** error remains, have the system unit, keyboard, and keyboard cable serviced.

Customer Diagnostic Diskette Program Will Not Load
 	
 - or -
 	
 6XX - Diskette Error (X can be any number)
	Make sure you are using the Customer Diagnostic Diskette and that it is inserted correctly. Try to start the Customer Diagnostic Diskette again. If the diskette program will not load, have the system unit serviced.
	
	 Note: If you receive a **6XX** error and have a 5.25-inch external diskette drive attached to your system:
	
	 1. Turn off the external diskette drive and system unit.
	 2. Insert the Customer Diagnostic Diskette into drive A.
	 3. Turn on the system unit (do not turn on the external diskette drive).
	 4. Perform the system checkout on your system again.
	   • If you receive a **6XX** error, have the system unit serviced.
	   • If you do not receive a **6XX** error, have the external diskette drive serviced.

Clock Symbol Appears on the Screen (Set Time and Date)	Press the F1 key to continue. Select the Set Time and Date program from the SERVICES menu. If you cannot correctly set the time and date, or this symbol appears every time you power on, have the system unit serviced.

If you did not receive any of the error messages or symptoms listed above, continue with the next chart.

If your system has any of the following error messages, take the action described. If your system has more than one of the messages, take the action described for the *first* message.

(**X** can be any number.)

Error Message	Action
199 - Installed Devices List Error	**Internal Devices:** If an internal device was missing from the list, have the system unit serviced. **External Devices:** If an external device was missing from the list, refer to the instructions that came with the device for testing information. If there is no testing information, have the system unit and external device serviced.
1XX - System Board Error 2XX - Memory Address Error 5XX - Display Error 7XX - Math Coprocessor Error 9XX - Parallel Port Error 10XX - Alternate Parallel Error 11XX - Serial Port Error 12XX - Alternate Serial Error	Have the system unit serviced.
13XX - Joystick Error	Have the joystick and system unit serviced.
14XX - Printer Error	Have the printer serviced.

15XX - SDLC Error
17XX - Fixed Disk Failure
20XX - BSCA Error
21XX - Alternate BSCA Error
30XX - Network Failure
   except **3015*** and **3042***
31XX - Network Failure
   except **3115*** and **3142***
74XX - VGA Error
84XX** - Speech Adapter Failure
ROM Error
Parity Check 1
Parity Check 2
	Have the system unit serviced.

* If you received one of these errors, have the network serviced.

** If you received this error, have the system unit and the Speech Control Assembly serviced.

If you did not receive any of the error messages listed above, continue with the next chart.

If your system has any of the following symptoms, take the action described. If your system has more than one of the symptoms, take the action described for the *first* symptom.

Symptom	Action
No beep during self-test	Have the system unit serviced.
More than one beep during self-test	Have the system unit serviced.
Continuous beep	Have the system unit serviced.
No keys on the keyboard work	Have the system unit, keyboard, and cable serviced.
Only some keys on the keyboard work	Have the keyboard and cable serviced.
Any **3XX** error message (**X** can be any number)	Have the keyboard and cable serviced.
Totally blank screen	Have the system unit serviced.
No cursor displayed	Have the system unit serviced.
Only the cursor is displayed	Have the system unit serviced.
Screen is unreadable	Have the system unit serviced.
Display problems	Have the system unit serviced.
Any printer error or problems	Continue on page 4-6.
Tests stop and you cannot continue	Have the system unit serviced.
Any other error message	Have the system unit serviced.
Basic screen is displayed	Make sure that you are using the Customer Diagnostic Diskette, and that it is inserted correctly. Try to start the Customer Diagnostic Diskette again. If the Basic panel still appears, have the system unit serviced.

If you have reached this point and have not identified a problem, you may want to seek technical assistance. A person trained to help with technical problems may be available at your location or place of purchase.

Testing the Printer or Other External Option

Refer to the instructions that are supplied with your printer or other external option and check to see that it is:

- Cabled correctly
- Plugged into a properly grounded outlet, if necessary
- Switched on
- Adjusted properly.

External options may have their own tests. Refer to the instructions that are supplied with the option and run the tests. If the tests work, have the system unit serviced. If the tests do not work, have the external option serviced.

SECTION 4. TESTING YOUR SYSTEM

Problems with your system can be caused by software, hardware, or both. This section helps you determine the cause of a problem and what to do about it.

Notes:

1. Use this section to test only IBM products. Non-IBM products may give invalid errors or responses.

2. Some devices that attach to your system have test instructions; refer to those instructions when testing those devices.

3. Record any error message or symptom for future reference.

4. When using software, you may receive error messages. Refer to the software manual for a description of those messages.

Starting the Tests

Your system performs a power-on self-test each time you switch it on. In addition, other tests are available on the Customer Diagnostic Diskette.

Follow these steps to begin testing your system:

1 Switch off the system unit.

2 Insert the Customer Diagnostic Diskette into the diskette drive.

3 Switch on the system unit.

> **Important:** Pay close attention to the *number* of beeps that your system unit makes during the self-test. You will be asked how many beeps you heard if the self-test finds a problem.

4 After the self-test (approximately 45 seconds), does the following screen appear?

```
                  IBM

            Executive Workstation

         Customer Diagnostic Diskette




       (C) Copyright IBM Corporation 19XX

       Press ENTER (←┘) to Continue
```

YES The self-test is complete. To continue testing, follow the instructions on your Services screen.

   a. Select the **FORMAT DISKETTE** option and format one blank diskette.
   b. Select the **SYSTEM CHECKOUT** option to begin testing.
   c. Follow any instructions on your screen.

   If you receive an error message, refer to the following troubleshooting charts; then take the action listed.

NO Refer to the following troubleshooting charts; then take the action listed.

   Note: Some system errors allow you to press the **F1** key to continue. This allows you to operate your system with reduced function.

Troubleshooting Charts

If your system has any of the following error messages, take the action described. If your system has more than one of the messages, take the action described for the *first* message. Error messages appear in the upper left-hand part of the screen.

Error Message	Action
205 - Memory Error	Have the system unit serviced (Note: Pressing the F1 key allows you to continue using the system with reduced memory).
301 - Keyboard or System Unit Error	Make sure the keyboard is connected correctly and a key is not being held down. If a key is not being held down: 1. Switch off the system unit. 2. Wait 5 seconds. 3. Switch on the system unit. If the **301** error remains, repeat these steps after plugging the keyboard cable into the pointing device connector on the rear of the system unit. If this clears the error, have the system unit serviced. If the **301** error remains, have the system unit, keyboard, and keyboard cable serviced.
Customer Diagnostic Diskette Program Will Not Load - or - **6XX** - Diskette Error (**X** can be any number)	Make sure you are using the Customer Diagnostic Diskette and that it is inserted correctly. Try to start the Customer Diagnostic Diskette again. If the diskette program will not load, have the system unit serviced. **Note:** If you receive a **6XX** error and have a 5.25-inch external diskette drive attached to your system: 1. Turn off the external diskette drive and system unit. 2. Insert the Customer Diagnostic Diskette into drive A. 3. Turn on the system unit (do not turn on the external diskette drive). 4. Perform the system checkout on your system again. • If you receive a **6XX** error, have the system unit serviced. • If you do not receive a **6XX** error, have the external diskette drive serviced.
Clock Symbol Appears on the Screen (Set Time and Date)	Press the F1 key to continue. Select the Set Time and Date program from the SERVICES menu. If you cannot correctly set the time and date, or this symbol appears every time you power on, have the system unit serviced.

If you did not receive any of the error messages or symptoms listed above, continue with the next chart.

If your system has any of the following error messages, take the action described. If your system has more than one of the messages, take the action described for the *first* message.

(**X** can be any number.)

Error Message	Action
199 - Installed Devices List Error	**Internal Devices:** If an internal device was missing from the list, have the system unit serviced. **External Devices:** If an external device was missing from the list, refer to the instructions that came with the device for testing information. If there is no testing information, have the system unit and external device serviced.
1XX - System Board Error 2XX - Memory Address Error 5XX - Display Error 7XX - Math Coprocessor Error 9XX - Parallel Port Error 10XX - Alternate Parallel Error 11XX - Serial Port Error 12XX - Alternate Serial Error	Have the system unit serviced.
13XX - Joystick Error	Have the joystick and system unit serviced.
14XX - Printer Error	Have the printer serviced.

15XX - SDLC Error
17XX - Fixed Disk Failure
20XX - BSCA Error
21XX - Alternate BSCA Error
30XX - Network Failure
   except 3015* and 3042*
31XX - Network Failure
   except 3115* and 3142*
74XX - VGA Error
84XX** - Speech Adapter Failure
ROM Error
Parity Check 1
Parity Check 2
	Have the system unit serviced.

* If you received one of these errors, have the network serviced.

** If you received this error, have the system unit and the Speech Control Assembly serviced.

If you did not receive any of the error messages listed above, continue with the next chart.

If your system has any of the following symptoms, take the action described. If your system has more than one of the symptoms, take the action described for the *first* symptom.

Symptom	Action
No beep during self-test	Have the system unit serviced.
More than one beep during self-test	Have the system unit serviced.
Continuous beep	Have the system unit serviced.
No keys on the keyboard work	Have the system unit, keyboard, and cable serviced.
Only some keys on the keyboard work	Have the keyboard and cable serviced.
Any **3XX** error message (**X** can be any number)	Have the keyboard and cable serviced.
Totally blank screen	Have the system unit serviced.
No cursor displayed	Have the system unit serviced.
Only the cursor is displayed	Have the system unit serviced.
Screen is unreadable	Have the system unit serviced.
Display problems	Have the system unit serviced.
Any printer error or problems	Continue on page 4-6.
Tests stop and you cannot continue	Have the system unit serviced.
Any other error message	Have the system unit serviced.
Basic screen is displayed	Make sure that you are using the Customer Diagnostic Diskette, and that it is inserted correctly. Try to start the Customer Diagnostic Diskette again. If the Basic panel still appears, have the system unit serviced.

If you have reached this point and have not identified a problem, you may want to seek technical assistance. A person trained to help with technical problems may be available at your location or place of purchase.

Testing the Printer or Other External Option

Refer to the instructions that are supplied with your printer or other external option and check to see that it is:

- Cabled correctly
- Plugged into a properly grounded outlet, if necessary
- Switched on
- Adjusted properly.

External options may have their own tests. Refer to the instructions that are supplied with the option and run the tests. If the tests work, have the system unit serviced. If the tests do not work, have the external option serviced.

Appendix A. ADDITIONAL INFORMATION

Restarting the System

The system unit may be restarted in one of two ways:

- If the system unit is on, press the **Ctrl** key, **Alt** key, and **Del** key at the same time; then release them.

    - or -

- Switch off the system unit, wait five seconds, and then switch it on.

Setting Time and Date

A time and date program is included on the Customer Diagnostic Diskette. To use the program:

1 Insert the Customer Diagnostic Diskette into the diskette drive.

2 Restart the system unit.

3 After the self-test (approximately 45 seconds), the Services menu should appear on your screen.

4 Select **4 (SET TIME AND DATE)** from the menu.

5 Follow the instructions on your screen to set the time and date.

IBM Personal Computer BASIC

The system unit comes with an installed program language called
IBM Personal Computer BASIC.

To use BASIC, do the following:

1 Remove any diskette from the diskette drive.

2 Restart your system unit.

3 After the self-test (approximately 45 seconds), and you hear
one beep, press the **F1** key to continue.

4 When the following screen appears, BASIC is loaded and ready
to use. Refer to the *IBM BASIC* manual for further information.

```
The IBM Personal Computer Basic
Version XX.X Copyright IBM Corp. 19XX
XXXXX Bytes free

Ok
```

```
1 LIST  2 RUN  3 LOAD"  4 SAVE"  5 CONT  6 ,"LPT1  7 TRON  8 TROFF  9 KEY  0 SCREEN
```

Typing Additional Characters Using the Numeric Keypad

You can type additional characters that may not appear on your keyboard by using the numeric keypad and following the procedure below.

1 Press and hold the **Alt** key.

2 On the numeric keypad, type the 2-digit or 3-digit code for the character. You will find the character codes in the *IBM Basic* manual and the *Technical Reference* manual for the IBM PS/2 Model 30.

3 Release the **Alt** key.

Using the Correct Diskettes

The diskette drive is used to read data from and record data onto diskettes. Use only 1.0 Mb capacity (720 Kb formatted) 3.5 inch diskettes.

Formatting Your Diskettes

Refer to your operating system manual for information about formatting diskettes.

Write-Protecting Diskettes

When a diskette is write-protected, no information can be recorded (written) on the diskette.

- To prevent writing on a diskette, slide the write-protect switch down.
- To allow writing on a diskette, slide the write-protect switch up.

Note: The Customer Diagnostic Diskette is permanently write-protected.

Top View   Bottom View

Not Write-Protected

Write-Protect Tab   Write-Protected
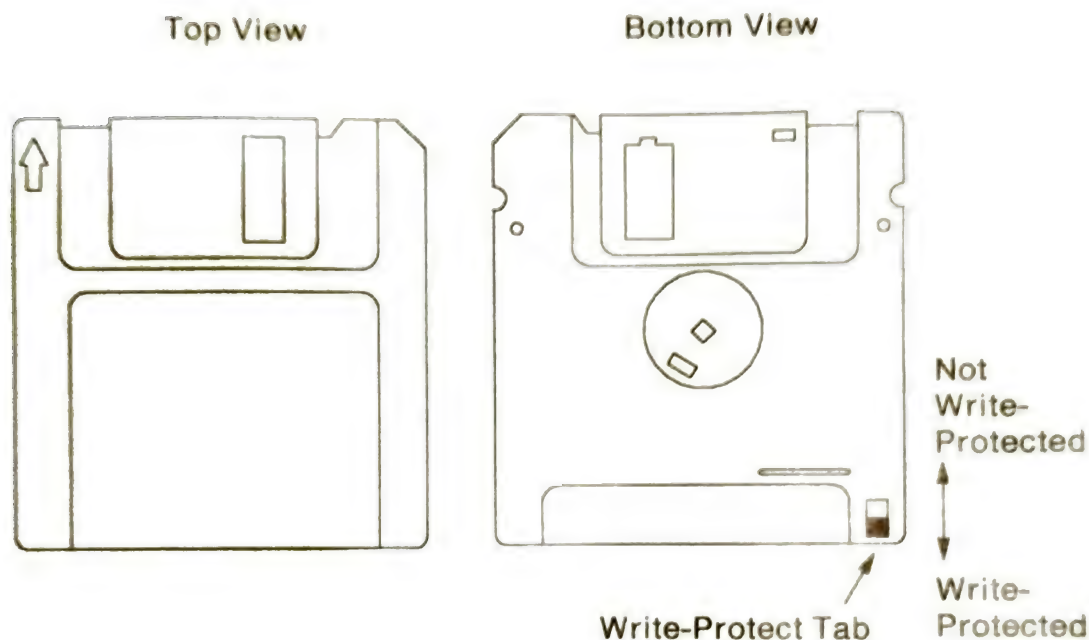
IBM Power Cords

For your safety, IBM provides a power cord with a grounded attachment plug to use with this IBM product. To avoid electrical shock, use the power cord and plug with a properly grounded electrical outlet.

Appendix B. SPECIFICATIONS

Specifications for the IBM Executive Workstation are as follows:

- **System Board**

    - Microprocessor

        - 8086-2, 16-bit data bus, 8-bit I/O bus
        - 8 Mhz clock

    - 640K byte read/write memory

    - Other integrated features

        - Color/Graphics (MCGA) subsystem

        - Diskette drive interface

        - **Serial** port (RS232)

        - **Parallel** port

        - **Keyboard** port

        - **Pointing** device port

        - **Realtime** clock with battery backup

        - I/O channel (two expansion slots).

- **Diskette Drive**

    - 3.5 in. diskette drive
    - 1M byte unformatted (720K bytes formatted).

- **Size**

    - Width: 26.3 cm (10.25 in.)
    - Depth: 41.7 cm (16.25 in.)
    - Height: 35.9 cm (14 in.) with color display, 33.3 cm (13 in.) with monochrome display.

- **Environment**

    - Air temperature

        - System on: 15°C to 32°C (60°F to 90°F)
        - System off: 10°C to 43°C (50°F to 110°F)

- Humidity

  - System on: 8% to 80%
  - System off: 20% to 80%.

- **Electrical**

  - Power: 60 volt-amperes (typical) .06 KVA
    3.41 Btu per minute
  - Input voltage
    - Minimum: 90 Vac
    - Nominal: 120 Vac
    - Maximum: 137 Vac

Glossary

This glossary includes terms and definitions from the *IBM Vocabulary for Data Processing, Telecommunications, and Office Systems*, GC20-1699.

adapter. (1) A printed circuit board that plugs into the system board allowing an external option to be attached to the system unit. (2) Any printed circuit board that plugs into the system board.

BASIC. (1) Beginner's All-purpose Symbolic Instruction Code. (2) A programming language that uses common English words.

computer. A functional unit that can perform substantial computation, including numerous arithmetic operations or logic operations, without human intervention during a run.

computer program. A sequence of instructions suitable for processing by a computer.

cursor. A bar of light that indicates where data entered from the keyboard or pointing device will appear on the screen.

device. An electronic piece of equipment with a specific purpose.

Customer Diagnostic Diskette. The Customer Diagnostic Diskette has a variety of programs, including diagnostic testing, and set time and date function.

diskette. A thin, flexible magnetic disk and a semi-rigid protective jacket, in which the disk is permanently enclosed. Synonymous with flexible disk.

diskette drive. A device for storing data on and retrieving data from a diskette.

display. A device for visual presentation of information on any temporary character-imaging device.

DOS. Disk Operating System. See **operating system**.

external option. Devices attached to the outside of the system unit that extend and enhance its operation. Examples: display, printer, or modem.

FCC. Federal Communications Commission.

format. To prepare a diskette to receive data in an organized fashion.

hardware. (1) Physical equipment used in data processing, as opposed to programs, procedures, rules, and associated documentation. (2) Contrasted with software.

internal option. Parts, such as adapters, that are installed inside the system unit covers and enhance operation of the system.

Kb. 1024 bytes.

keyboard. A set of keys as part of a machine.

Mb. 1,048,576 bytes.

memory. Term for main storage.

operating system. Software that controls the execution of programs; an operating system may provide services such as resource allocation, scheduling, input/output control, and data management.

option. See **internal** or **external option**.

parity check. (1) A redundancy check that uses a parity bit. (2) Synonymous with odd-even check.

POST. Power-on self-test. A series of diagnostic tests that are run each time the system unit is turned on.

printer. An external device that writes output data from the system on paper or other media.

program. (1) A series of actions designed to achieve a certain result. (2) A series of instructions telling the computer how to handle a problem or task. (3) To design, write, and test computer programs.

programming language. (1) An artificial language established for expressing computer programs. (2) A set of characters and rules with meanings assigned prior to their use, for writing computer programs.

run. A single continuous performance of a computer program or routine.

software. (1) Computer programs, procedures, and rules concerned with the operation of a data processing system. (2) Contrasted with hardware.

source diskette. The diskette you will be transferring information *from*.

system. A computer configuration including at least a system unit, a keyboard, and a display.

system unit. Main part of the computer configuration.

target diskette. The diskette you will be transferring information *to*.

troubleshooting. Finding and correcting problems.

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